2011 Military Health System Conference

High Tech Meets High Touch:

Using Technology to Redefine Inpatient Care Delivery in the Fort Belvoir Community Hospital

The Quadruple Aim: Working Together, Achieving Success

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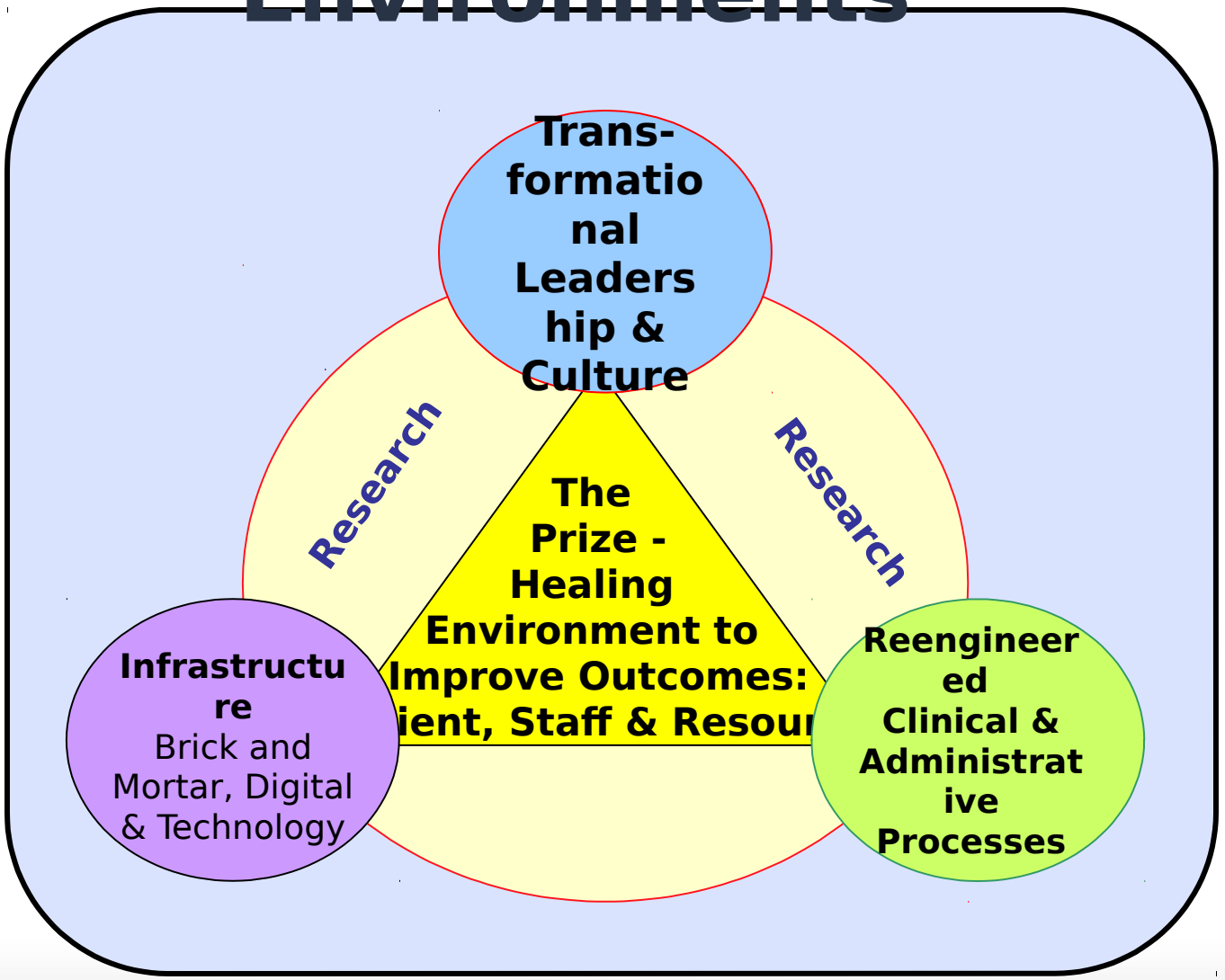
Objectives

- Review EBD Principles and Goals for FBCH
- Discuss how the use of Technology will Re-Design Work Processes and Improve Outcomes
- The Path to Redefined Care

Creating Healing Environments



Evidence Based Design Principles:

Patient and Family Centered Care & Care of the Whole Person

EBD Goals:

Decrease stress

Increase social support

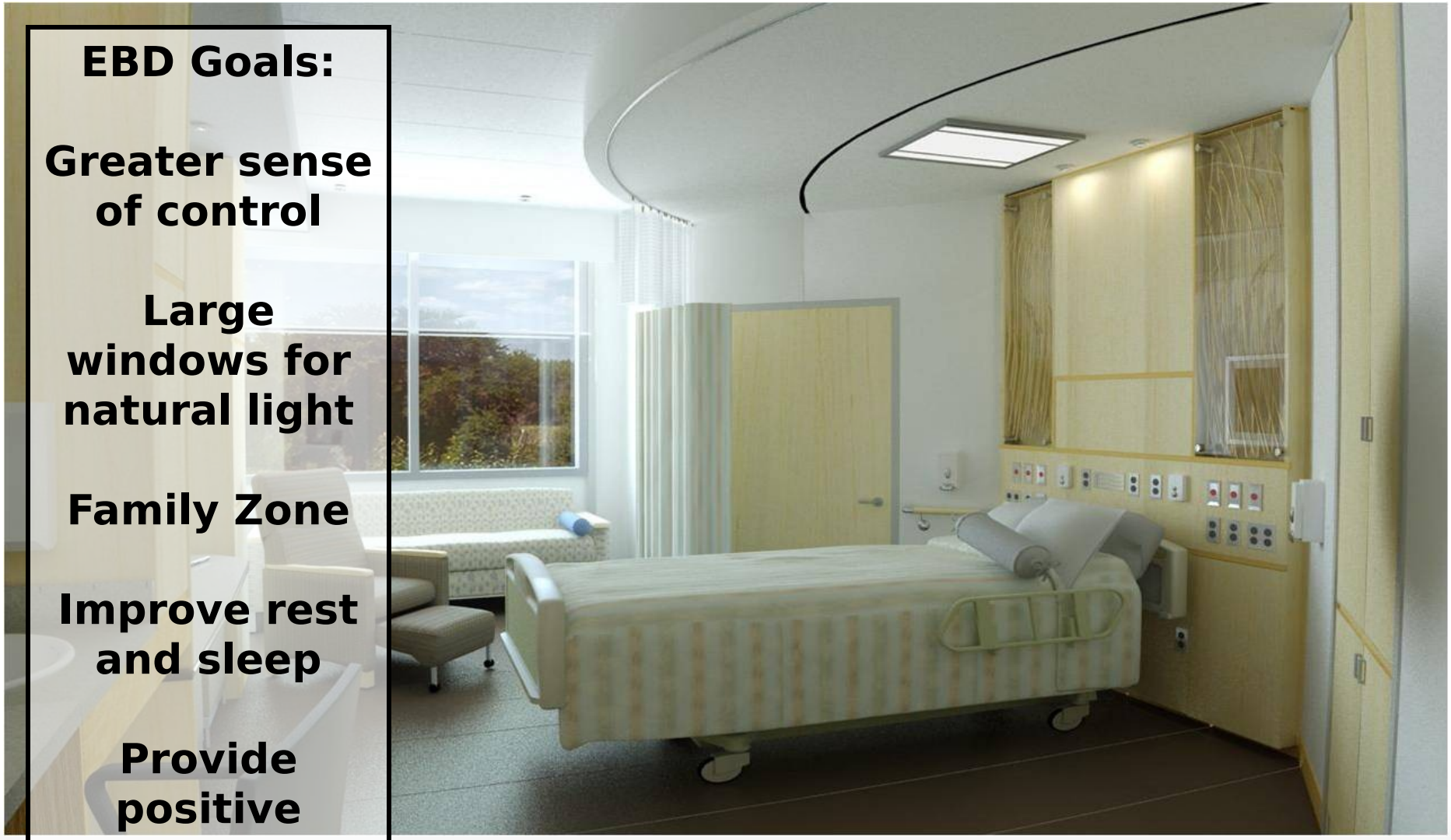
Provide light

Provide positive distractions

Improved wayfinding

EBD Principles:

Patient and Family Centered Care & Care of the Whole Person



EBD Goals:

Greater sense of control

Large windows for natural light

Family Zone

Improve rest and sleep

Provide positive distractions

EBD Principle:
Improve Healthcare Quality and Safety

EBD Goals:

Decrease hospital based infections

Prevent patient falls

Reduce medication errors

Reduce noise stress to improve speech intelligibility

But it can get even better….

We are seeking
Transformational
not Incremental Change!

The Next Step: Using Technology to Re-Engineer Processes

- Technology can contribute to transforming the health care environment by
  - Allowing patient to control their environment and actively participate in their care
  - Improving rest and sleep
  - Reducing noise and improving speech intelligibility
  - Increasing care coordination and team effectiveness
- Bridge the gap between physical structure and organization through information and communications infrastructure

Smart Suite Technology in the Fort Belvoir Community Hospital

The Cerner Smart Suite combines innovative technologies, medical device interoperability and workflow solutions to improve patient care and clinician efficiency. The Smart Suite incorporates key elements of the patient and clinician experience to streamline care. The objective of the Smart Suite is to create an environment that:

- Connects medical devices to the EMR
- Allows caregivers to view relevant clinical data from the EMR and medical devices
- Empowers patients and their families by connecting them to their personal health record.

CareAware myStation
Offers interactive health information, education and entertainment to improve the patient and family experience.

CareAware iAware
Provides clinicians a personalized view of all information relevant to patient care by enhancing communication and access to information.

CareAware iBus including Bed Connectivity
CareAware iBus™ is the core component of the *CareAware* architecture that manages two-way communication between devices and the EMR.

CareAware RoomLink
Electronic signage outside a patient room to communicate appropriate data to clinicians, including falls risk and allergies, as well as whether or not a clinician visit is in-progress.

CareAware EPS
A fully integrated, enterprise-wide positioning and real time location solution that delivers clinical integration and process improvement benefits.

CareAware AlertLink
Improves patient outcomes by routing alerts to a clinician's mobile device.

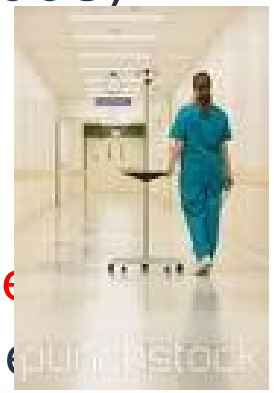
Smart Suite Technology in the Fort Belvoir Community Hospital

- iAware: Clinical Dashboard
- CareAware iBus: Biomedical Device Integration
  - AlertLink for Device Alert/Alarm Routing
- Enterprise Positioning Solution
  - Real Time Location System (RTLS) = Sonitor
- myStation: Interactive Patient System
  - Environmental Control (lights, shades, temp)
- RoomLink: Electronic Room Signage
- Integrated with MHS Legacy EHR systems
  - Essentris (CliniComp)
  - AHLTA (Armed Forces Health Longitudinal Health Application)
  - CHCS (Composite Healthcare System)

Smart Suite Video

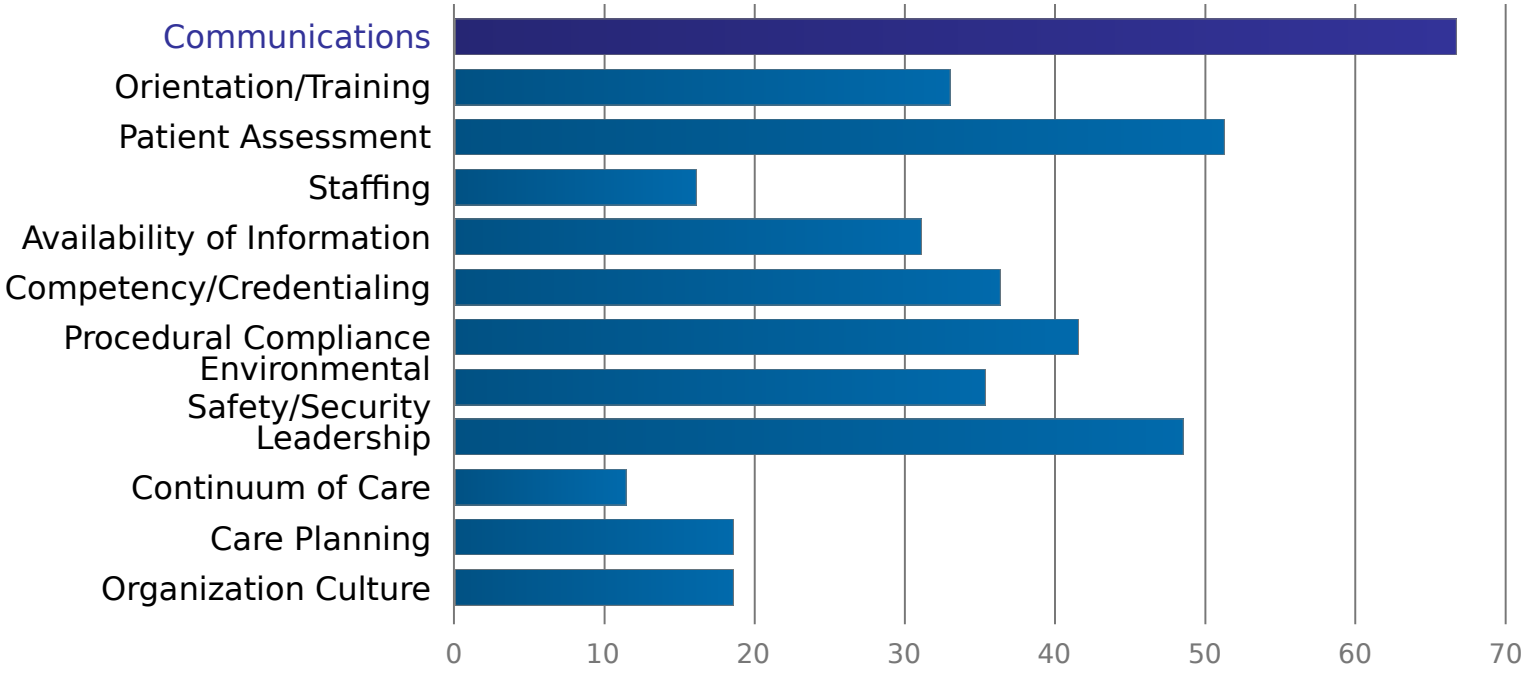
Making the Case for Change

- “how well we are cared for by nurses affects our health…” (IOM, 2004)
- Nursing actions are directly related to better patient outcomes (Kahn et al., 1990)
- Less nursing time provided to patients is associated with higher rates of infection, gastrointestinal bleeding, pneumonia, cardiac arrest, and death (Needleman et al., 2002)
- How nursing time is divided (Hendrich et al., 2008)
  - 7.2% time on physical assessment/surveillance
  - 35.3% documentation
  - 17.2% medication administration
  - 20.6% care coordination (communicating with te
  - Median walking distance in 10 hr shift = 3.0 mile



Poor Communication is Leading Cause of Death

A Joint Commission study found that poor communication was the leading cause of accidental death and serious injury in hospitals



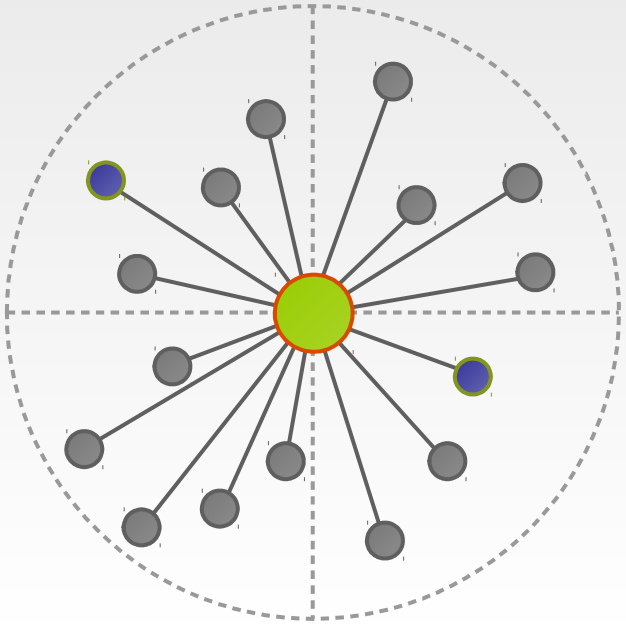
Source: Joint Commission 2006.

Communicating: Current State

- Page and wait
- Hunt and gather
- Hub and spoke
- Central Nurse Call system

Future State: Direct Communication at the Point of Care

Current



Current Hub and Spoke Communication – leaving the bedside

Post Vocera

Direct Wireless Communication

Vocera empowers clinical staff to communicate directly to the right person from the point of care

Vocera Features

- Connects staff members regardless of location
  - Place and receive calls world-wide
- Hands free, lightweight device
- 1:1 model
- Usage
  - By name
  - Role based
  - Action team

Critical Alerts and Alarms Delivered to Vocera Devices

EMR → Patient safety

Nurse call → Patient Experience

Patient monitoring → Responsiveness

Bed management → Length of stay

System Type	Description	Impact
GE Telligence Nurse Call System	Caregivers can instantly receive call light inquiries and respond back to the room providing the best patient experience possible	Enhance Patient Experience
Patient Monitoring	Patient monitoring systems provide notification to caregivers of deterioration or change in a patient's condition.	Improve Nurse Responsiveness
Bed Management	Bed management systems provide notification to care teams to facilitate the timely transport of patients and room cleaning requests	Reduce Length of Stay (LOS)

Communication Workflow Improvement Example

Lab calls the department secretary to report critical patient lab results to the primary nurse caring for the patient

Pre Vocera

	Lab calls ICU to communicate critical lab results	Unit secretary answers phone; puts lab on hold	Nurse found and walks to closest department phone	Lab reports to RN critical H&H on patient with GI bleed	RN writes critical labs down on piece of paper then looks up MD no.	RN pages MD to report critical H&H and obtain orders	Physician calls back and nurse reports critical H&H and receives orders
Time for each step:	0:00	2:00	0:45	0:30	1:30	0:15	2:00
Running time:	0:00	2:00	2:45	3:15	4:45	5:00	7:00

Post Vocera

	Lab analyzes critical H&H on pt. then calls "room 303 nurse"	Nurse answers with vocera and writes critical H&H values down	RN calls MD (intensivist) on Vocera and reports H&H and obtains orders
Time for each step:	0:30	0:15	0:30
Running time:	0:00	0:45	1:15

Total time saved by Vocera: 5:45 minutes

Source: Vocera customer research 2009

Producing a More Quiet Healing Environment

Gateway Hospital – Banner Health
7 Hospital System
Gilbert, AZ

Challenge:
Improve patient satisfaction and become a destination hospital by deploying evidence-based design features to reduce noise across inpatient units.

Patient Satisfaction

Status Quo

- ✓ Peak noise levels average 85 – 90 db(A)
- ✓ Patient sleep disruption and annoyance
- ✓ Increased staff fatigue and perceived work pressure

Approach

One Vocera badge deployed per 2.75 health system employees with particular emphasis placed on hospitalist utilization to eliminate use of overhead paging.

- 95% of employees with Vocera
- 85,000 monthly badge-badge calls

Vocera Results

- ✓ 93 % of patients "likely to recommend hospital"; health system average 82%*
- ✓ 62% of patients report hospital is quiet at night; health system average 50%*
- ✓ Peak noise levels average 30 – 35 db(A)

* Press Ganey

Other Technologies

- Pneumatic Tube System
  - Lab and Pharm applications to improve patient experience
- Patient Queuing (Q-Flow)
  - Kiosks to start med prep process prior to arriving at window
  - Provide options and enhance convenience
- Live Data Video Integration

IT as a Conduit to the World

InTouch: VisitOR1

Sustainable Transformation

“First we shape our buildings; thereafter, they shape us.” ~ *Winston Churchill*

The Fort Belvoir Community Hospital

"Where Evidence Based Design meets Patient/Family Centered Care in a Culture of Excellence"